Material and methods. The new image guided AlignRT system is based on structured light. A protocol has been developed to establish tolerances for accepting patient positioning and to control possible changes in the treatment volume, taking into account the information given by the AlignRT. We performed a prospective study in a group of patients diagnosed with breast cancer with indication for breast irradiation after conservative surgery. We collected and corrected in real time the deviations recorded in the conventional positioning of the patient. Patients who have undergone significant changes in the volume of treatment have been replanned.
Result. By analyzing the recorded correction values, which ensures correct daily positioning of the patient, we observe variations above one centimeter at some parameters. To adequately cover the ranges associated with treatment volume, we determined that the percentage of matching treatment-planning surfaces within a tolerance of 3 mm should be above 70%. The use of the system has allowed recording changes in the volume and the determination of treatment replanning in 10–30% of patients, depending on the time elapsed between the planning CT and the start of treatment. Furthermore we achieved to decrease the time necessary to guarantee correct daily positioning.
Conclusions. This system ensures proper IGRT daily reproduction treatment, reduces the time necessary to allow patient positioning and show treatment volume disturbances. Furthermore, it is an innocuous system for the patient.

http://dx.doi.org/10.1016/j.rpor.2013.03.080

Can skin tester evaluation of chronic toxicity predict cosmetic results after conservative treatment in breast cancer?

J. Sanz Latiesas[1], N. Rodriguez de Dios[1], J. Dengra Domingo[2], P. Foro Arnalot[1], E. Fernandez-velilla[2], A. Reig Castillejo[2], P. Pérez Villaverde[2], J. Lozano Galan[2], J. Quera Jordana[1], I. Membrive Conejo[2], O. Pera Cegarra[2], P. Iglesias Garcia[3], M. Algara Lopez[1]
[1] *Parc de Salut Mar, Universitat Pompeu Fabra, Barcelona, Spain*
[2] *Parc de Salut Mar, Barcelona, Spain*
[3] *Unitat de Recerca, Fundacio Clinic, Barcelona, Spain*

Introduction. Conservative surgery and irradiation can impact in cosmesis results in breast cancer. Several subjective evaluation scales are currently employed but there are paucity data about cosmesis valuated by objective parameters of skin toxicity. We present an analysis of cosmetic results in front to measurable parameters of chronic skin toxicity.
Material and methods. Breast cancer patients with conservative surgery have been included and treated postoperatively with standard or hypofrationated schedules. All patient had a boost at two dose levels. After a minimum follow-up of 12 months, chronic toxicity was evaluated by RTOG scale, cosmesis results were valuated independently by patient (0–10 scale) and physician (four grade Harris scale). Objective hydration and elasticity parameters were obtained by means a multi probe skin tester (Multi-Skin-Center® MC-750-B2, CKelectronic-GmbH).
Results. 39 patients were included in the study. In 26 patients high dose boost was administered (16 or 20 Gy) and low dose in the remaining 13 (dose of 8 or 10 Gy). Cosmesis score was of 4–6 in 3 patients, 7–8 in 18 patients, and 9–10 in 18 patients. Objective parameters at involved breast compared with chronic toxicity and cosmesis scales resulted in no differences between groups. Nevertheless, when analyzed objective measures at involved boosted quadrant, elasticity and hidration resulted different according to patient cosmesis valuation ($p = 0.022$ and 0.035 respectively). Likewise, elasticity decrease at boost level was correlated with physician valuated cosmesis. There were no correlation of these parameters with toxicity scales or total doses administered at tumor bed.
Conclusions. Objective evaluation of chronic toxicity by means skin elasticity and hidration parameters could predict long term cosmetic results.

http://dx.doi.org/10.1016/j.rpor.2013.03.081

Comparison of three breast dosimetric planning techniques

R. Ortiz de Zárate[1], J. Pérez-azorín[1], L. Martínez-indart[2], B. Ruiz[3], J. Cacicedo[3], A. Gómez-iturriaga[3], F. Casquero[3], I. Trueba[4]
[1] *Hospital de Cruces, Unidad de Protección Radiológica y Radiofísica, Spain*
[2] *Hospital de Cruces, Unidad de Epidemiología Clínica, Spain*
[3] *Hospital de Cruces, Servicio de Oncología Radioterápica, Spain*
[4] *Hospital TXAGorritxu, Servicio de Oncología Radioterápica, Spain*

Objective. Considering the radiotherapeutical process as a balance of costs and benefits, we present the results of a pilot study intended to achieve practical criteria for deciding the appropriate technique for each breast radiotherapy case.
Methods. 21 patients (11 left breast, 3 right; 5 left chest wall, 2 right; 7 of them including axilo-supraclavicular lymph nodes) were planned to 50 Gy with three different techniques in a Pinnacle planning system, according to RTOG-1005 criteria: first, named as classical, two wedged tangential beams; second, named as segmented, a combination of two unwedged tangential fields with additional two fields (gantry varied 10–30 degrees from prior, blocking with MLC the chest wall, heart and lung), adding two or more fields for homogeneity if necessary; third, inverse DMPO IMRT. We performed a Wilcoxon statistical analysis of the data extracted from the histograms, including PTV and separated tumour volumes, as well as the organs at risk (OAR; heart,